REMARKS

Reconsideration and allowance of the subject application are respectfully requested. Upon entry of this Amendment, claims 1-15 are pending in the application. In response to the Office Action (Paper No. 6), Applicant respectfully submits that the pending claims define patentable subject matter.

I.   Preliminary Matters

The abstract is objected to objected to because it exceeds 150 words in length. By this Amendment, Applicant has amended the abstract to comply with the length requirement. Accordingly, the Examiner is requested to remove the objection to the abstract.

Claims 9 and 10 are objected to because the claims recite terms which lack an antecedent basis. Claims 3, 6-8 and 10 are rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the enablement requirement. Claims 9, 11 and 13-15 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite. By this Amendment, Applicant has amended the claims to address the Examiner's concerns and improve clarity. Accordingly, the Examiner is requested to remove the objection and § 112 rejections.

II.   Prior Art Rejections

Claims 1-4, 6 and 9 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Ohkubo et al. (USP 6,021,165; hereafter "Ohkubo") in view of Cahill (USP 5,150,384).

Claims 1-4, 6, 7 and 9 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Ohkubo in view of Yonge (USP 6,111,919). Claim 5 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Ohkubo in view of Cahill and Chen (USP 5,729,577). Claim 5 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Ohkubo in view of Yonge and Chen. Claim 8 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Ohkubo in view of Cahill, Godwin et al. (USP 4,620,069; hereafter "Godwin") and Chen. Claim 8 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Ohkubo in view of Yonge, Godwin and Chen. Claim 12 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Ohkubo in view of Cahill and Fowler (USP 6,031,418). Claim 12 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Ohkubo in view of Yonge and Fowler. Applicant respectfully traverses the prior art rejections.

A.   Rejections based on Ohkubo and Cahill

With regard to independent claim 1, the Examiner asserts that Ohkubo discloses all of the features of the claimed invention except for "the signal is divided into time segments (blocks), in that only a selection of the blocks are further processed for detection, whereas the blocks not selected are not further processed." However, the Examiner cites Cahill for teaching a time division multiple access (TDMA) system where the data received has been portioned into blocks and asserts that "it would have been obvious ... to utilize the TDMA modulation method where a received signal is divided into blocks as taught by Cahill in the receiver method of Ohkubo et al. because the system of Ohkubo could be advantageously

modified to allow for multiple users to use the same carrier frequency." (Office Action at pages 5 and 6).

Ohkubo discloses method of controlling the oscillation frequency of a local oscillator in a digital broadcast receiver. A phase-reference symbol contained in an orthogonal frequency-division multiplexed (OFDM) broadcast signal is demodulated, digitally sampled and Fourier transformed. The resulting frequency-domain data are modified by multiplication with complex conjugates of the known data encoded in the phase-reference signal, under different assumed frequency offsets between the frequency-domain data and known data. The results are converted to time-domain data, yielding one time series for each assumed frequency offset and values taken from each time series are compared. Based on the results of the comparison, the oscillation frequency is adjusted.

Cahill discloses a communications receiver for receiving a TDMA signal, wherein the receiver includes a carrier recovery apparatus having an adjustable response time loop filter responsive to carrier signal parameters determined by a signal processor.

Claim 1 is directed to a method for detecting an information signal, a tone of a specified frequency, or a phase change of the tone in a signal which contains the information signal or the tone. Claim 1 recites:

> dividing the signal into a plurality of blocks corresponding to time segments of the signal, wherein the blocks have an adjustable length which is set to ensure accurate detection of the information signal, the tone or the phase change;
>
> selecting a predetermined number of the blocks to be processed for detection, wherein the blocks which are not selected are not further processed;

transforming sample values of the signal in selected blocks from the time domain to the frequency domain, to produce at least one output value; and

detecting the information signal, the tone or the phase change based on said at least one output value.

Claim 14 recites similar limitations. Applicant respectfully submits that the combined references do not teach or suggest the blocks have an adjustable length which is set to ensure accurate detection of the information signal, the tone or the phase change, as required by amended independent claims 1 and 14.

Unlike TDMA where the time slots are fixed in length, the present invention teaches that the block length is adjustable/variable to ensure sufficient accuracy for the signal detection. That is, the block length is adjustable/variable as a function of the signal/noise ratio (SNR) of the signal so that a substantially constant error rate of detection is achieved over a range of signal/noise ratios. Further, one of ordinary skill in the would not have been motivated to utilize a variable time slot length in an OFDM/TDMA system such as Ohkubo and Cahill since this would prevent accurate reception of data in the intended time slots (i.e., render the system useless).

Accordingly, Applicant respectfully submits that claims 1-14 should be allowable over Ohkubo and Cahill because the combined references do not teach or suggest all of the features of the claimed invention.

B.   Rejections based on Ohkubo and Yonge

With regard to independent claim 1, the Examiner cites Yonge for disclosing "a method for receiving OFDM signals using a rectangular, or preferably, a Hamming window to further aid in the reception of the signal in the presence of a jamming or noise signal." The Examiner further states that "rectangular or Hamming window functions (col. 6, eq. 1; col. 7, eq. 2) creates blocks out of the signals to be received as they are applied ... [and] blocks that are not selected are not further processed by the system." The Examiner alleges that "it would have been obvious to ... to utilize a window function as taught by Yonge III in the receiver method of Ohkubo et al because it would further aid the system to make correct symbol decisions." (Office Action at pages 8 and 9).

Applicant respectfully submits that claimed invention would not have been rendered obvious in view of Ohkubo and Yonge. Although Yonge teaches the input signal is passed through a window filter this is not the same as or even analogous to dividing the signal into a plurality of blocks corresponding to time segments of the signal, and selecting a predetermined number of the blocks to be processed for detection, wherein the blocks which are not selected are not further processed, as required by the claims. That is, window filtering does not select some blocks (time segments) of the signal while discarding other blocks of the signal. Rather, a window filter continuously multiplies the input signal by a window function such that all time segments of the input signal are passed through the filter (i.e., the windows are not discontinuous).

Accordingly, Applicant respectfully submits that claims 1-15 should be allowable over Ohkubo and Yonge because the combined references do not teach or suggest all of the features of the claimed invention.

IV. Conclusion

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,

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